

An Inventory of Four New Angiospermic Climbers Record from Coastal Districts of Odisha

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Abstract

The present paper enunciates with the documentation of four unreported climbers and twinners belonging to four different plant families, from coastal Odisha. They are *Clematis dioica* L., *Cocculus carolinus* (L.)DC., *Ipomoea amnicola* T. Morong, *Macroptilium atropurpureum* (Mocino & Sesse ex DC.) Urban, *Ipomoea triloba* L. Comprehensive description, geographic allocation, and coloured snapshots of each species are furnished.

Key words: Climbers, twinner, coastal Odisha, geographic allocation.

1. Introduction

Coastal Odisha comprises of six districts namely Puri, Khordha, Ganjam, Kendrapada, Jagatsinghpur, Bhadrak and Balasore. It harbours an area of 25,137km sq². Climatic condition is quite saline and devoid of large mountainous region. The average maximum and minimum temperature ranges between 12°C and 43°C respectively. Average rainfall is 1125.5 mm. These districts are embellished with many diversified flora, which shows uniqueness in ecological condition.

2. Research methodology

Specimens were collected from the study sites between 2012-2016. Essential measurements and photographs of plant specimens were taken at each

site in the field. Then the specimens were brought to Post Graduate Department of Botany, Utkal University, Bhubaneswar, where morphological characters were thoroughly verified for each species. Meticulous scrutiny of all the pertinent literatures (Behera and Misra, 2007; Biswal et. al., 2013; Das and Misra, 2000; Dash and Mishra, 1998; Jena et. al., 2018; Kalidass and Murugan, 2016; Kar et. al., 2017; Mishra et. al., 2009; Mishra et. al., 2018; Murugan et. al., 2015; Pattanaik et. al., 2006; Reddy and Pattanaik, 2011; Rout, et. al., 2012; Saravanan, et. al., 2014) as well as the relevant Floras of the area under study (The Botany of Bihar and Orissa: Haines, 1921- 1925; Supplement to the Botany of Bihar and Orissa: Mooney, 1950; The Flora of Orissa: Saxena and Bramham, 1994 -1996), it was divulge that these species have not been described so far within the periphery of Odisha and thus established as new plant records for the state. However, these specimens were identified by using the published literatures (Tsai, 2003; Naik, 2018) as well as the Flora of China (Shu, 2010, Wu et.al, 1995), Flora of North America (Rhodes, 1997). The collected voucher specimens were preserved and submitted to the Post Graduate Department of Botany, Utkal University Vani Vihar, Bhubaneswar, Odisha.

3. Result and Discussion

Clematis dioica L. Syst. Nat. (ed. Deci, 10) 2:1084.1759; et Amoen. Acad. 5: 398. 1760; Mill., Dict. Gard., ed. 8, no. 13. 1768; Willd., Sp. Nov. 2: 1291. 1800; Pers., Syn. Pl. 2: 99.1807; DC. Syst. 1:

143. 1818; et Prodr. 1:4. 1824; Macfa., Fl. Jamaica 2.1837; Griseb., Cat. Pl. Cub. 1. 1866. p.p.; Hemsl. in Godman & Salvin, Biol. Centr.-Am. Bot. 1:2. 1879; Kuntze in Verh. Bot. Ver. Brand. 26:102. 1885; Goyena, Fl. Nicarag. 168. 1909; Fawcett & Rendle, Fl. Jamaica 190. 1914, p.p. excl. syn. *Clematis caripensis* H.B.K.; Barker & Dardeau, Fl. Haiti 116. 1930; Standley, Fl. Yucatan 265. 1930, p.p.; Stahl, Fl. Cuba 2: 162. 1951; Mosco, Cat. Fl. Doming. 1: 192. 1943; Leon & Alain, Fl. Espanola 2: 237. 1983; Kellog in Howard, Fl. Less. Antill. 4: 222. 1988; M. Johnson, Klematis 476. 1997; *Clematis rufa* Rose; Grey-Wils., Clematis 49. 2000;

Clematis virginiana subsp. *dioica* (L.) Voss Vilm. Blumeng. Dritte Neub. Aufl. (ed.3)1:7.1894; *Clematis virginiana* var. *dioica* (L.) Kuntze Revis. Gen. Pl. 1: 2. 1891; *Clematis virginiana* L.f. *paucidentata* Kuntze, Rev. Gen. Pl. 1: 2. 1891; *Clematis americana* Mill., Gard. Dict., ed. 8, no. 14. 1978; *Clematis dioica* ssp. *normalis* Kuntze in l.c. Cat. Pl. Jamaica 1: 199.t.128. 1696; *Clematis dioica* ssp. *americana* (Mill.) Kuntze in l.c. 103.1730-1731; *Clematis glabra* DC., Syst. 1: 143. 1818.

Vernacular name(s): Morata (O), Leather Flower (E)

Family: Ranunculaceae

Habit: perennial lianas. **Habitat:** mesophytic climber. **Stem:** branchlets slightly demarcated with 11-15 parallel grooves, glabrous or slightly puberulous. **Leaves:** cauline, opposite, compound, arranged in three leaflets; leaflets subcoriaceous or papery, broadly ovate, 3-7.5 x 1.5-6 cm, acute or acuminate apex, base rounded or semicordate, margin entire, occasionally 1-serrate per side, both abaxial and adaxial surfaces glabrous or slightly puberulous, abaxially basal veins slightly prominent, petioles 1.5-7.5 cm long. **Inflorescence:** axillary and terminal, 1-many-flowered cymes. **Staminate Flower:** 6-many flowered, often panicle like, pedunculate, peduncles 1.5-5 cm long; pedicellate, pedicel 0.5-2 cm long, puberulous or glabrous; bracteates, bracts sessile, triangular, 4-6 cm long, or shortly petiolate, narrowly ovate or elliptic, 0.5-1.5 cm long, 1.5-2.5 cm in diameter. **Calyx:** sepals 4, white, obovate-oblong or oblanceolate-oblong, 5.5-10 x 3-5 mm, apex slightly obtuse, surfaces glabrous or puberulous on both the sides, margin with short dense silky upright hairs. **Corolla:** absent. **Androecium:** stamens 5-9(-10) mm long, glabrous; anthers narrowly oblong, 0.8-1.5 mm long, apex obtuse. **Pistillate Flower:** 4-many flowered, peduncles 0.5-5 cm long, bracts petiolate, obovate or elliptic, 0.3-4 cm long, 1.2-1.4 cm in diameter, pedicellate, pedicel 1.5 -2.3 (-3) cm long, glabrous or puberulous. **Calyx:** sepals 4, white, oblong or narrowly oblong, 6-7.5 x 1.5-3 mm, apex

slightly obtuse, glabrous or puberulous on both sides, margin with short hairs. **Corolla:** absent; staminodes 2-4 mm long. **Gynoecium:** ovaries puberulous; styles 4-5 mm long, persistent, densely hairy. **Fruit:** Achenes, compressed, aggregate, sessile, lenticular, long elliptic, ca. 3.5 x 4 mm, puberulous, narrowly rimmed, plumose, sides inconspicuously veined; beak at terminal position, curved. **Seeds:** 1-many per ovary, sessile, not enclosed (Fig. 1 A,B,C,D,E).

Flowering: July - October & **Fruiting:** October - January

Host plant: Very frequent on *Acacia leucophloea*, *Tectona grandis* and *Melosma pinnata*.

Distribution: Native to South America from Argentina North to Mexico and the Caribbean.

Specimen examined: Asurabandha, Ganjam, 22.04.2012, GSJP & RM 986 (Herbarium, Utkal University, Vani Vihar, Bhubaneswar).

GPS Reading: N 18° 38' 645" & E 83° 06' 782"

Associated species: Plant is found along with *Jasminum* sp, *Cocculus hirsutus*, *Ipomoea* sp. etc.

Macroptilium atropurpureum (Mocino & Sesse ex DC.) Urban, Symb. Antill. seu Fund. Fl. Ind. Occident. 9(4): 457. 1928;

Phaseolus semierectus var. *atropurpureus* (DC.)

M. Gómez Anales de la Soc. Esp. Hist. Nat. 23: 295. 1894; *Phaseolus atropurpureus* DC. Prodr. Syst. Nat. Reg. Veg. 2: 395. 1825.

Vernacular name(s): Badapichha (O), Siratro, Atró, Purple bean, Purple bush-bean (E)

Family: Fabaceae

Habit: perennial prostrate herbs, very often climber, sometimes rooting at nodes. **Habitat:** terrestrial mesophyte. **Stems:** pubescent or tomentose, herbaceous. **Leaf:** stipulate, stipules not produced below point of insertion, strongly striate, ovate, 4-5 mm, pilose; stipels similar but smaller, petiolate, petiole 0.5-5 cm; leaves pinnately 3-foliolate; leaflets ovate to rhombic, 1.5-7 x 1.3-5 cm, sometimes lobed, lateral ones oblique, lobed on outer side, abaxially silvery tomentose, adaxially pubescent, base rounded, apex obtuse or acute. **Inflorescence:** a raceme, racemes long with peduncle 10-25 cm and rachis 1-8 cm. **Flower:** bracteate, complete, hermaphrodite, zygomorphic, pentamerous, and hypogynous. **Calyx:** 5 sepals, more or less united in a tube and persistent, imbricate, white, pilose, narrowly campanulate, ca. 6 mm, invariably the odd sepal is anterior in position. **Corolla:** 5 petals, very unequal and papilionaceous, standard 1.5-2 cm, with long claw, reflexed, obovate or orbicular, with 2 small reflexed auricles at base; wings large, much longer than standard, very wide, obovate or partly

rounded, erect, 2-auricles present below base of limb, long clawed, claw partly adnate to staminal tube; keel twisted, long clawed, deeply blackish purple; vexillary aestivation. **Androecium:** 10 stamens, diadelphous, 1 free, remainder connate; anthers uniform, ditheous, introrse. **Gynoecium:** monocarpellary, superior, unilocular, marginal placentation, subsessile, few to many ovuled; style twice ca. 90° incurved, thickened in upper part, simple stigma. **Fruits:** legumes linear, 5-9 cm × ca. 4 mm, apex rostrate, 12-15 seeded. **Seeds:** marbled with brown and black striae, oblong-elliptic, ca. 4 mm (Fig. 1 F; Fig. 2 A,B).

Flowering: June-July & **Fruiting:** August-October

Host plant: *Lagerstroemia reginae*, *Tectona grandis*, *Samanea saman* etc.

Distribution: Native to tropical America; widely cultivated and naturalized in the tropics.

Specimen examined: Garadapur, Kendrapara 8.11.2013, GSJP & RM 576 (Herbarium Utkal University, Vani Vihar, Bhubaneswar), 250 m.

GPS Reading: N 20° 50' 27" & E 86° 42' 34"

Associated species: Plant is found along with *Desmodium triflorum*, *Cynodon dactylon*, *Digitaria longifolia* etc.

Ipomoea triloba L. Sp. Pl. 1: 161. 1753; Oostroom, Fl. Males. Ser. 1, 4: 468. 1953; Fernandes et al., in J. Bombay nat. Hist. Soc. 52: 661 - 663.1954; Baker and Bakhuizen, Fl. Java 2: 494. 1965; Chandra et al., Ind. J. Fores. 23-24. 1976; Fosberg and Sachet in Smithsonian Contr. Bot. No. 36: 24. 1977; Magesh et al., in ZOO's PRINT, 5, 24. 2012; Shah, Fl. Gujrat 1: 475. 1978; Singh and Pandey, Bull. Bot. Surv. Ind. 21: 92. 1979; Deva et al. Indian For. 116(9) 755-756. 1990; Anil Kumar et al., Fl. Pathanamthitta 344. 2005; Bhellum and Magotra J. Phytol. Res. 20(2): 243-245. 2007; Sunil and Sivadasan, Fl. Alappuzha dist. 476. 2009; *Ipomoea commutata* Naves in Fl. Filip. ed. 3. 31. 1877; *Batatas triloba* (L.) Choisy Mém. de la Soc. de Phys. et d' Hist. Nat. de Genève 8(1): 49. 1838; *Convolvulus trilobus* (L.) Desr. Encycl. Méthod. Bot. 3(2): 564. 1792; *Convolvulus heterophyllus* Sessé & Moc., Fl. Mexic.: 36 (1892); *Ipomoea blancoi* Choisy in DC., Prodr. 9: 389.1845; *Convolvulus dentatus* Blanco Fl. Filip. 89. 1803.

Vernacular name(s): Danti pravata shova (O), Little bell, Morning glory, Pink convolvulus, Aiea morning glory, Three lobe morning glory (E).
Family: Convolvulaceae.

Habit: annual climber or creeper; if no support is available it grows prostrate over the ground

Habitat: terrestrial mesophyte. **Stem:** prostrate and twining, much branched, 1-7 m long, glabrous

or sometimes puberulous, densely pubescent on the nodes, angled, ca.1.6-3.5 mm wide, herbaceous.

Exudate: stem releases little amount of milky juice. **Leaves:** simple, alternate, petiolate, petiole slender, up to 15 cm long, glabrous or rarely tuberculate, glabrous or pubescent as long as blade, little quantity of milky secretion is found. Leaf blades broadly ovate to orbicular in outline longer than width, 2.5-15 cm long and 2.6-13.5 cm broad, thin, cordate; more or less deeply trilobed, biconspicuous basal lobes present, central lobe may be pointed; leaf blade is not always three-lobed, it varies, margin entire or lowly serrate, adaxial side minutely pubescent on each side of the midrib; lateral veins are about 4-6. **Inflorescence:** axillary, umbellate with several-flowered cymes, rarely one flowered; peduncles shorter or may be longer than the petiole, 1-15 cm long, stout, angular toward the apex, glabrous, verruculose toward the apex, branches of the cyme very short. **Flowers:** bracteate, bracts linear-lanceolate, small, pedicellate, pedicel 2-12 mm, resistant, angular, thickened at apex, glabrous, complete, hermaphrodite, actinomorphic, pentamerous, hypogynous. **Calyx:** sepals 5, polysepalous, 5-12 mm long, the outer two sepals shorter, oblong to narrowly elliptic-oblong, calyx-lobes sub-equal, elliptic-ovate, 1.7-2.6 mm across, adaxial side densely pubescent. **Corolla:** pink to pale-purple often with darker centre and pale mid-petal areas, with or without white markings, infundibuliform, 1.7-2.4 cm long and 2.2-2.5 cm in width, glabrous, narrowed at the base. **Androecium:** stamens 5, attached to the inside of the corolla tube; inserted, all are of various length, 2-11 mm long, filaments pubescent at base; anthers and filaments white, ditheous, basifixed, sagittate, pollen grains minutely spinulose. **Gynoecium:** bicarpellary, syncarpous, superior, 2-loculed, erect, axile placentation, style one, ca. 7-11 mm long, stigma bilobed, ovary conical, pilose, 2 to 4-celled, pubescent with a white nectary. **Fruit:** depressed, subglobose, bristly pubescent, with sharp point bristly hairy; a thin-walled capsule, 6-10 mm long, two celled, four valved, sepals persistent. **Seeds:** 2-4 per capsule, subglobose, ca.2.7-3.5 mm long, glabrous except at one margin, firm, glaucous, brown (Fig. 2 C,D,E).

Flowering: September - October & **Fruiting:** October - January

Host plant: *Alstonia scholaris*, *Bombax cieba*, *Cieba pentandra* etc.

Distribution: Taiwan, Indonesia, Japan, Malaysia, New Guinea, Philippines, Sri-Lanka, North America, West Indies and Pacific Islands

Specimen examined: Biridi, Jagatsinghpur 5.7. 2014, GSJP & RM 453 (Herbarium Utkal University, Vani Vihar, Bhubaneswar), 275m

GPS Reading: N 20° 22' 28" & E 85° 86' 245"

Associated species: Plant is found along with *Cocculus hirsutus*, *Tinospora cordifolia*, *Stephania japonica* etc.

Notes: Both *Ipomoea triloba* and *Ipomoea batatas* have purple, funnel shaped flower (Wu et al. 1995). But there are differences in other characters between these two species. However, former differs from later in the exterior characters of the sepals and ovary. Sepals of first one is densely pubescent on margin and midrib whereas second has glabrous sepals. The ovary in first one is densely hirsute while second has glabrous and shining ovary. Similarly *Ipomoea batatas* has a tuberous root unlike the tap root of *Ipomoea triloba*.

Ipomoea triloba is also very often confused with *Ipomoea cordatotriloba*. However, *Ipomoea cordatotriloba* has flowers 3.5 to 7.7 cm long, while the flowers of *Ipomoea triloba* are always less than 2.5 cm long.

Cocculus carolinus (L.) DC. Syst. Nat. 1: 524. 1818. *Menispermum carolinum* L. Sp. Pl. 1: 340. 1753; *Cebatha carolina* (L.) Britton Mem. Torrey Bot. Club 5: 162. 1894. *Androphylax scandens* Wendland, Bot. Beob. 2: 38. 1798. *Cebatha virginica* (Linnaeus) Kuntze, Revis. Gen. Pl. 1: 9. 1891. *Cocculidium populifolium* Spach, Hist. Nat. Vég. 8: 17. 1839, nom. illegit. *Baumgartia scandens* Moench, Methodus 650. 1794. *Cissmapelos smilacina* L. Sp. Pl. 1032. 1753. *Cocculus carolinus* (L.) DC. var. *hederaceaefolius* Miers, Contr. Bot. 3: 254. 1871. *Cocculus sagittifolius* Miers, Contr. Bot. 3: 255. 1871. *Menispermum virginicum* L. Sp. Pl. 340. 1753. *Menispermum carolinianum* Hill, Veg. Syst. 16: 27. 1770, nom. illegit. *Menispermum carolinum* L. Sp. Pl. 340. 1753. *Wendlandia populifolia* Willd. Sp. Pl. 2: 275. 1799, nom. illegit. *Epibaterium carolinum* (L.) Britton, in Britton & A. Brown, Ill. Fl. N. U.S., ed. 2: 2: 131. 1913.

Vernacular name(s): Bilati musakani (O), Red-berried moonseed, Coral vine, Carolina snail seed, Carolina coral bead, Carolina moonseed, Red berried moonseed, Carolina red berried moonseed (E). **Family:** Menispermaceae

Habit: climbing vines 3 to 15 ft long or more; rhizomes 1.6 cm diam. **Habitat:** terrestrial mesophyte. **Stem:** green, soft, apically tomentose, twining, and covered with spreading hair. **Leaves:**

simple, alternate, exstipulate, petiolate, petiole 2 to 12 cm, leaf blade generally ovate or deltate, sometimes sagittate or hastate, in some cases cordate, 15×12 cm, sometimes medium to yellow-green, membranous to leathery, base sometimes with 4-6 lobes, entire margin, acute apex to rounded, often retuse, mucronate; surfaces abaxially slightly pale, rarely shiny, medium to densely hairy, adaxially glabrous to slightly hairy; 5 veined. **Inflorescences:** Inflorescences axillary, racemose panicles; 12 to 21 cm; bracteolate; rachis glabrous or tomentose. **Flowers:** small, greenish, male and female on different plants called staminate flowers and pistillate flowers. **Staminate flowers:** branched, pedicellate, sepaloïd bracteoles absent. **Perianth:** hypogynous, not glaucous, segments distinct or fused, inconspicuous, greenish white to white or cream, imbricate or valvate, sepals in 3 rows, outer sepals 1-3, ovate, 0.2-1.3×0.4-0.7 mm, pubescent, middle 3 sepals ovate to elliptic or obovate, 1-4×0.5-3 mm, smooth to pubescent, inner 3 sepals elliptic to orbiculate or obovate, 0.8-3×0.8-2 mm, glabrous to sparsely pilose; petals (5-)6, yellow, elliptic, deltate, rhombic, obovate, or nearly orbiculate, 0.6-2×0.4-1.4 mm, glabrous. stamens (6-)8, to 3.4 mm; pistillodes to 0.5 mm. **Pistillate flowers:** unbranched, perianth not glaucous, sepals in 3 rows, outer sepals 1-3, ovate, 0.2-1.3×0.4-0.7 mm, hairy, middle 3 sepals ovate to elliptic or obovate, 1-4×0.5-3 mm, smooth to pubescent, inner 3 sepals elliptic to orbiculate or obovate, 0.8-3×0.8-2 mm, glabrous to sparsely pilose, petals (5-)6, yellow, elliptic, deltate, rhombic, obovate, or nearly orbiculate, 0.6-2×0.4-1.4 mm, glabrous, staminodes 6, staminodes 0.2 to 0.6 mm; pistils 6, 2 to 4 mm, poorly developed; ovary slightly asymmetrically pouched, glabrous; stigma entire. **Fruit:** drupes, red in grape like clusters, 4-7 mm diam, orbicular, absence of hairs; endocarp osteic (bony), constricted but not excavate, verrucose, ribbed. **Seeds:** sessile, malacocampylous (coiled like a snail) (Fig.2 F; 3 A, B).

Flowering: June - August & **Fruiting:** September

Host plant: Very often found on *Trewia nodiflora*, *Haldinia cordifolia*, *Gmelina arborea*.

Distribution: Native to Florida, Texas, North Carolina, found in moist rich woods, roadside thickets of the area under study.

Specimen examined: Rasalpur, Balasore, 27.03.2015, GSJP & RM 236 (Herbarium, Utkal University, Vani Vihar, Bhubaneswar), 267 m.

GPS Reading: N 20° 50' 293" & E 86° 18' 445"

Associated species: Plant is found along with *Riccinus communis*, *Cayratia pedata*, and other plants.

Ipomoea amnicola T. Morong Ann. New York Acad. Sci. 7: 170 1892.

Vernacular name(s): Tatee pravatasova (O), Red centred morning glory (E).

Family: Convolvulaceae

Habit: slightly succulent twining perennial.

Habitat: terrestrial mesophyte. **Stem:** glabrous, 15-20 ft long, herbaceous, thick. **Leaves:** simple, alternate, exstipulate, petiolate, petioles 1 - 12 cm, glabrous, margin entire, 2 - 7 (- 13) × 2 - 7 (- 12) cm, ovate, sometimes also broad, distinctly narrowed to an acuminate apex, base heart-shaped with circular auricles, abaxially slightly glaucous.

Inflorescence: typically an axillary cyme of rather dense, form of an umbel at the end of long pedicels, many-flowered. **Flower:** bracteate, bracts large and conspicuous, bracteolate, bracteoles 1-3 mm, pedunculate, peduncles 1-6 cm; ovate, caducous; secondary peduncles 4-16 mm; pedicellate, pedicels 0.7-2 cm; complete, hermaphrodite, actinomorphic, pentamerous, hypogynous. **Calyx:** 5 sepals, greenish, polysepalous, quincuncial, persistent, unequal, coriaceous, glabrous, outer 3-6 mm long, elliptic, concave, obtuse and shortly mucronate, inner 6 - 7 mm long, obovate, rounded, with broad scarious margins, sometimes enlarged in fruit. **Corolla:** 5 petals, gamopetalous, infundibuliform, 2 - 4 cm, pale lilac with dark centre, white or pink to rose with dark red, glabrous, the limb 2 - 3.5 cm diam., unlobed, midpetaline bands well defined.

Androecium: 5 stamens, epipetalous, alternipetalous; filaments filiform, equal or unequal in length; anthers introrse, ditheous, basifixed, sagittate, laterally and longitudinally dehiscent; pollen smooth or finely spiny. **Gynoecium:** bicarpellary, syncarpous, superior, 2-loculed, erect, axile placentation, Styles 1, filliform, terminal, stigma capitate, one entire or 2-(or 3)-lobed.

Fruits: capsule ovoid, 8 -13 × 5 mm, glabrous, dehiscent by valves, circumscissile. **Seeds:** trigonous, 4-6, pubescent, reddish brown (Fig. 3 C,D ,E).

Flowering: June - August & **Fruiting:** September

Host plant: *Haldinia cordifolia*, *Barringtonia acutangula*, *Baliospermum montanum* etc.

Distribution: Southern United States, Colombia, Argentina, Bolivia, Chaco.

Specimen examined: Arnabal, Bhadrak, 14.08.2014, GSJP & RM 279 (Herbarium, Utkal University, Vani Vihar, Bhubaneswar) 268 m.

GPS Reading: N 20° 85' 257" & E 86° 33' 472"

Associated species: Plant is found along with *Cocculus hirsutus*, *Ipomoea* sp., *Cayratia trifolia* and other plants.

4. Conclusion

The authors have gone through all the related published literatures (Behera and Misra, 2007; Biswal et. al., 2013; Das and Misra, 2000; Dash and Mishra, 1998; Jena et.al., 2018; Kalidas and Murugan, 2016; Kar, et. al., 2017; Mishra et. al., 2009; Mishra et. al., 2018; Murugan et. al., 2015; Pattanaik et. al., 2006; Rath, 2011; Reddy and Pattanaik, 2011; Rout, et al., 2012; Saravanan, et. al., 2014) and visited the Utkal University Herbarium unit, CSIR-IMMT Herbarium unit and the Herbarium of Regional Plant Resource Centre, Bhubaneswar to ascertain the occurrence, distribution and habitat of these species. It was found that these species were neither preserved nor reported earlier from the state of Odisha. On verification of the earlier preserved herbarium specimens and detailed scrutiny of literature published till date on these taxa, it can be claimed that these are new records and added to the existing flora of Odisha.

Acknowledgement

The authors wish to express their gratitude the Head of the Department of Botany, Utkal University, Bhubaneswar, Odisha for providing necessary laboratory and library facilities for the study.

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A. *Clematis dioica* whole plant



B. Individual flowers of *Clematis dioica*



C. Individual calyx of *Clematis dioica*



D. Fruiting branches of *Clematis dioica*



E. Ripening seed heads of *Clematis dioica*



F. Whole plant of *Macroptilium atropurpureum*

Fig. 1 Photographs of voucher specimens



A. Individual flower of *Macropitilium atropurpureum* **B.** Fruit of *Macropitilium atropurpureum*



C. Whole plant *Ipomoea triloba* **D.** Individual flower of *Ipomoea triloba*



E. Fruit of *Ipomoea triloba* **F.** Whole plant of *Cocculus carolinus*

Fig. 2: Photographs of voucher specimens



A. *Cocculus carolinus* young fruit



B. Ripened fruit of *Cocculus carolinus*



C. Whole plant of *Ipomoea amnicola*



D. Individual flower of *Ipomoea amnicola*



E. Fruit of *Ipomoea amnicola*

Fig. 3: Photographs of voucher specimens